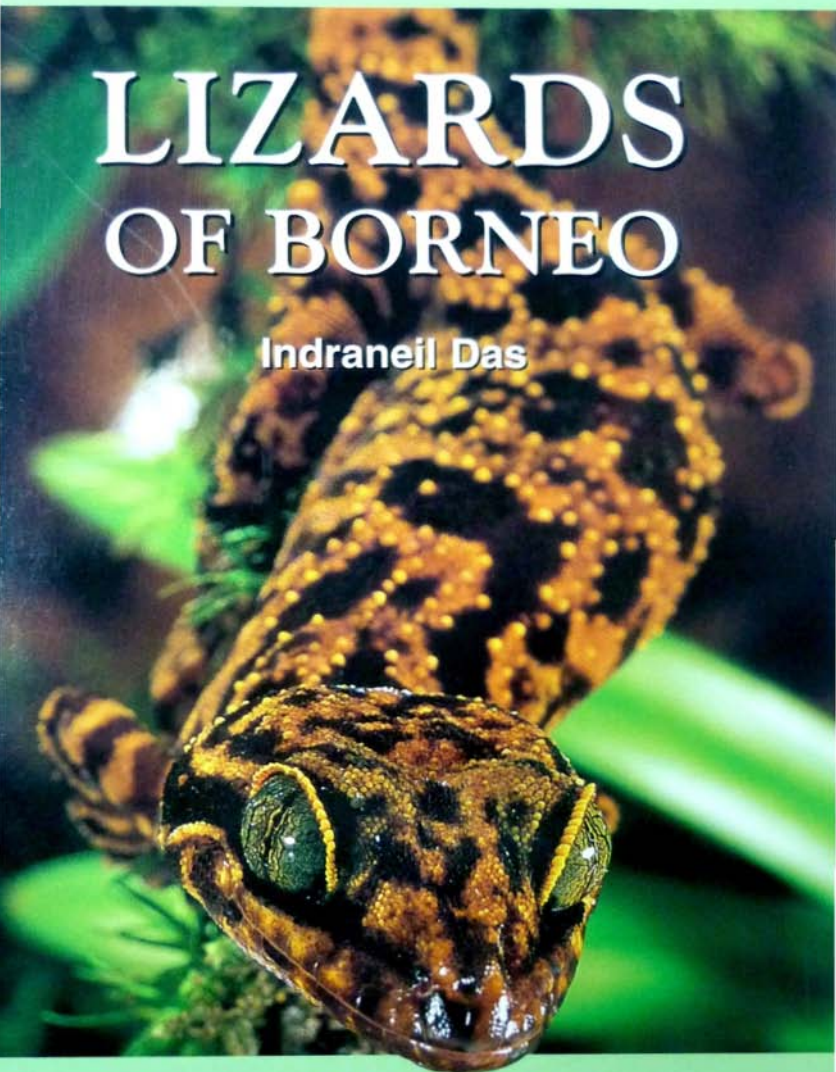


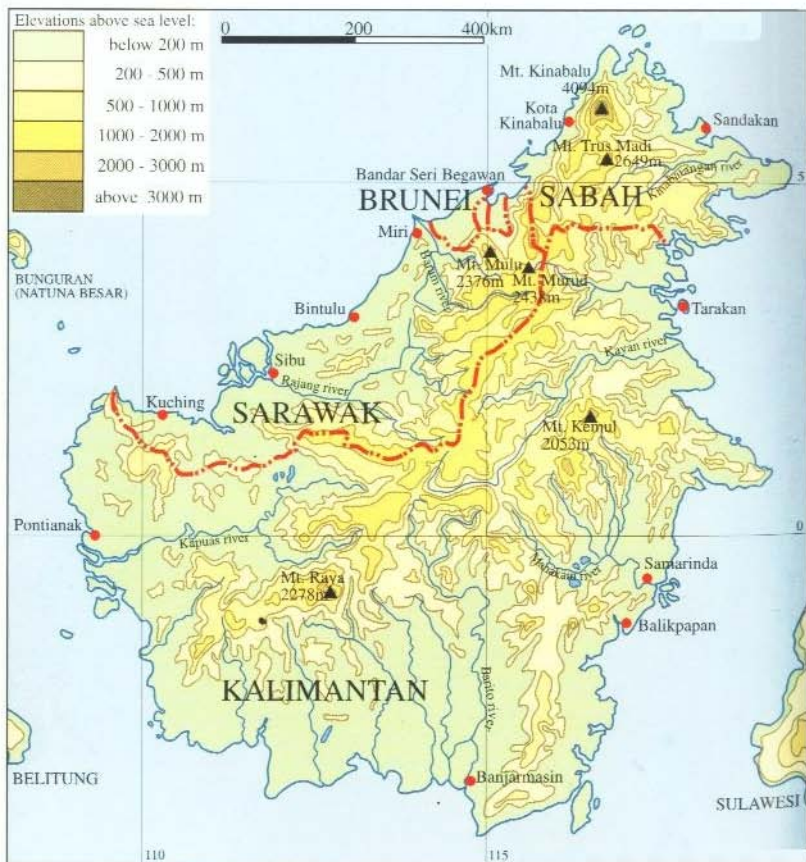
A P O C K E T G U I D E

LIZARDS OF BORNEO

Indraneil Das



Natural History Publications (Borneo)



Map of Borneo.

LIZARDS OF BORNEO

Text and photographs by

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Introduction

Borneo, one of the major islands of the Indo-Malayan Archipelago, is the second largest tropical island in the world (after New Guinea), covering a land area of approximately 743,380 sq km. A major part of the island constitutes the Indonesian possession of Kalimantan (area: 539,460 sq km), the rest within the east Malaysian states of Sarawak (124,450 sq km) and Sabah (73,710 sq km), and a small but significant portion is the Sultanate of Negara Brunei Darussalam (5,760 sq km).

The island is situated entirely within the tropics, with the equator crossing over the city of Pontianak in Kalimantan. The land is thus characterised by high, equitable temperature and heavy rainfall spread throughout the year, although relatively wetter periods are noticed during the Northeast Monsoons (November to April), rainfall is also experienced during the passage of the Southwest Monsoons (April to August).

Forest type most typical of Borneo must be the mixed dipterocarp type, from the yellow-red soils in the uplands. The lower montane and upper montane forests are also remarkable in their structure and composition. Here, canopy height is reduced, sometimes to 18–30 m, with few emergent trees, buttressed trees are less common, there is an absence of large woody climbers,

At 4095 m, Low's Peak on Gunung Kinabalu is the highest mountain peak in Borneo, and the Kinabalu massif itself is an important centre for lizard diversity, with as many as 45 species recorded. (Photo: Tee Kim Ling).

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which is offset by the great abundance of vascular epiphytes. Moss vegetation, with an abundance of bryophytes, in addition to gnarled trees characterise the upper limits of montane forests. Upper montane forests also have trees with small, leathery leaves and conifers. Forests associated with peat swamps are particularly distinctive, and are widespread along coastal areas abutting estuarine plains as well as in small river valleys. Plant life is adapted to high-stress environments, including mineral deficient substrate and poorly-aeriated and acidic waters, in addition to shortage of surface water during dry periods. Another unique vegetation type is the heath forests or Kerangas, confined to either raised beach terraces or sandstone ridges and plateaux, formed on ancient sea beaches left stranded by the fall in sea levels, about a million years before present.

Distinctive vegetation types also include the local limestone flora, speciose in plant and invertebrate (especially mollusc) endemics. Mangroves forests are also rich in species. The coastal margins are dominated by mangroves, while more freshwater conditions support strands of *Nypa fruticans* palms. Further upriver, declining salinity levels promote the association of *Heritiera littoralis* and *Oncosperma tigillarum*. Mangroves of the Sunda Shelf islands have been described as the most biologically diverse in the world, and trees may reach 50 m in height.

This work is a non-technical guide to the lizards inhabiting Borneo and its offshore islands. At present, 109 species are known from the region (Table 1), and a larger work on the fauna is in preparation. The present guide covers 73 species, or over 66% of the fauna.

For each species, the current valid scientific name, maximum size (snout-vent length) and brief notes on identification, biology and distribution, are provided.

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Table 1. Checklist of Bornean lizards. *indicates endemic species.

AGAMIDAE

***Aphaniotis* Peters, 1864**

Aphaniotis acutirostris Modigliani, 1889

Aphaniotis fusca (Peters, 1864)

* *Aphaniotis ornata* (van Lidth de Jeude, 1893)

***Bronchocela* Kaup, 1827**

Bronchocela cristatella (Kuhl, 1820)

Bronchocela jubata Duméril & Bibron, 1837

***Complicitus* Manthey & Grossmann, 1997**

* *Complicitus nigrigularis* (Ota & Hikida, 1991)

***Draco* Linnaeus, 1758**

* *Draco affinis* Bartlett, 1895

Draco cornutus Günther, 1864

Draco cristatellus Günther, 1872

Draco fimbriatus Kuhl, 1820

Draco haematopogon Boie in: Gray, 1831

Draco maximus Boulenger, 1893

Draco melanopogon Boulenger, 1887

Draco obscurus Boulenger, 1887

Draco quinquefasciatus Hardwicke & Gray, 1827

Draco sumatranus Schlegel, 1844

***Gonocephalus* Kaup, 1825**

* *Gonocephalus bornensis* (Schlegel, 1848)

Gonocephalus doriae (Peters, 1871)

Gonocephalus grandis (Gray, 1845)

Gonocephalus liogaster (Günther, 1872)

* *Gonocephalus mjobergi* Smith, 1925

***Harpesaurus* Boulenger, 1885**

* *Harpesaurus borneensis* (Mertens, 1924)

***Hypsicalotes* Manthey & Denzer, 2000**

* *Hypsicalotes kinabaluensis* (De Grijis, 1937)

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***Phoxophrys* Hubrecht, 1881**

- * *Phoxophrys borneensis* Inger, 1960
- * *Phoxophrys cephalum* (Mocquard, 1890)
- * *Phoxophrys nigrilabris* (Peters, 1864)
- * *Phoxophrys spiniceps* Smith, 1925
- Pseudocalotes* Fitzinger, 1843**
- * *Pseudocalotes sarawacensis* Inger & Stuebing, 1994

ANGUIDAE

***Ophisaurus* Daudin, 1803**

- * *Ophisaurus buettikoferi* van Lidth de Jeude, 1905

EUBLEPHARIDAE

***Aeluroscalabotes* Boulenger, 1885**

Aeluroscalabotes felinus (Günther, 1864)

DIBAMIDAE

***Dibamus* Duméril & Bibron, 1839**

- * *Dibamus ingeri* Das & Lim, 2003
- Dibamus leucurus* (Bleeker, 1860)
- * *Dibamus vorisi* Das & Lim, 2003

GEKKONIDAE

***Cnemaspis* Strauch, 1887**

- * *Cnemaspis dringi* Das & Bauer, 1998
- Cnemaspis kendallii* (Gray, 1845)
- Cnemaspis nigridia* (Smith, 1925)
- Cosymbotus* Fitzinger, 1843**
- Cosymbotus craspedotus* (Mocquard, 1890)
- Cosymbotus platyurus* (Schneider, 1792)
- Cyrtodactylus* Hardwicke & Gray, 1827**
- * *Cyrtodactylus baluensis* (Mocquard, 1890)
- * *Cyrtodactylus cavernicolus* Inger & King, 1961

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Cyrtodactylus consobrinus (Peters, 1871)

* *Cyrtodactylus ingeri* Hikida, 1990

* *Cyrtodactylus malayanus* (De Rooij, 1915)

* *Cyrtodactylus matsuii* Hikida, 1990

* *Cyrtodactylus pubisulcus* Inger, 1957

Cyrtodactylus quadrivirgatus Taylor, 1962

* *Cyrtodactylus yoshii* Hikida, 1990

***Gehyra* Gray, 1834**

Gehyra mutilata (Wiegmann, 1834)

***Gekko* Laurenti, 1768**

Gekko gekko Linnaeus, 1758

Gekko monarchus (Duméril & Bibron, 1836)

Gekko smithii (Gray, 1842)

***Hemidactylus* Gray, 1825**

Hemidactylus brookii Gray, 1845

Hemidactylus frenatus Duméril & Bibron, 1836

Hemidactylus garnotii Duméril & Bibron, 1836

***Hemiphyllodactylus* Bleeker 1860**

Hemiphyllodactylus typus Bleeker, 1860

***Lepidodactylus* Fitzinger, 1843**

Lepidodactylus lugubris (Duméril & Bibron, 1836)

* *Lepidodactylus ranauensis* Ota & Hikida, 1988

***Luperosaurus* Gray, 1845**

Luperosaurus browni Russell, 1979

* *Luperosaurus yasumai* Ota, Sengoku & Hikida, 1996

***Ptychozoon* Kuhl & van Hasselt, 1822**

Ptychozoon horsfieldii (Gray, 1827)

Ptychozoon kuhli Stejneger, 1902

* *Ptychozoon rhacophorus* (Boulenger, 1899)

LACERTIDAE

***Takydromus* Daudin, 1802**

Takydromus sexlineatus Daudin, 1802

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LANTHANOTIDAE

***Lanthanotus* Steindachner, 1877**

- * *Lanthanotus borneensis* Steindachner, 1877

SCINCIDAE

***Apterygodon* Edeling, 1864**

- * *Apterygodon vittatus* Edeling, 1864

***Brachymeles* Duméril & Bibron, 1839**

- * *Brachymeles apus* Hikida, 1982

***Dasia* Gray, 1839**

Dasia grisea (Gray, 1845)

Dasia olivacea Gray, 1839

Dasia semicineta (Peters, 1867)

***Emoia* Gray, 1845**

Emoia atrocostata (Lesson, 1830)

Emoia caeruleocauda (De Vis, 1892)

Emoia cyanura (Lesson, 1830)

***Lamprolepis* Fitzinger, 1843**

- * *Lamprolepis nieuwenhuisii* (van Lidth de Jeude, 1905)

- * *Lamprolepis vyneri* (Shelford, 1905)

***Larutia* Böhme, 1981**

- * *Larutia* undescribed species Grismer, Leong & Yaakob, 2003

***Lipinia* Gray, 1845**

- * *Lipinia* undescribed species Das and Austin, in prep

- * *Lipinia miangensis* (Werner, 1910)

- * *Lipinia nitens* (Peters, 1871)

Lipinia vittigera (Boulenger, 1894)

***Lygosoma* Hardwicke & Gray, 1827**

Lygosoma bampfyldei Bartlett, 1895

Lygosoma bowringii (Günther, 1864)

***Mabuya* Fitzinger, 1826**

Mabuya indepressa Brown & Alcalá, 1980

Mabuya multifasciata (Kuhl, 1820)

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Mabuya rudis Boulenger, 1887

Mabuya rugifera (Stoliczka, 1870)

***Sphenomorphus* Fitzinger, 1843**

- * *Sphenomorphus aesculeticola* Inger, Tan, Lakim & Yambun, 2002
- * *Sphenomorphus buettikoferi* (van Lidth de Jeude, 1905)
- * *Sphenomorphus crassa* Inger, Tan, Lakim & Yambun, 2002
- * *Sphenomorphus cyanolaemus* Inger & Hosmer, 1965
- * *Sphenomorphus haasi* Inger & Hosmer, 1965
- * *Sphenomorphus hallieri* (van Lidth de Jeude, 1905)
- * *Sphenomorphus kinabaluensis* (Bartlett, 1895)
- * *Sphenomorphus maculicollis* Bacon, 1967
- * *Sphenomorphus multisquamatus* Inger, 1958
- * *Sphenomorphus murudensis* Smith, 1925
- * *Sphenomorphus sabanus* Inger, 1958
- * *Sphenomorphus shelfordi* (Boulenger, 1900)
- * *Sphenomorphus stellatus* (Boulenger, 1900)
- * *Sphenomorphus tanahtinggi* Inger, Tan, Lakim & Yambun, 2002
- * *Sphenomorphus tenuiculus* (Mocquard, 1890)
- Tropidophorus* Duméril & Bibron, 1839**
- * *Tropidophorus beccarii* Peters, 1871
- * *Tropidophorus brookei* (Gray, 1845)
- * *Tropidophorus iniquus* van Lidth de Jeude, 1905
- * *Tropidophorus micropus* van Lidth de Jeude, 1905
- * *Tropidophorus mocquardii* Boulenger, 1894
- * *Tropidophorus perplexus* Barbour, 1921

VARANIDAE

***Varanus* Merrem, 1820**

Varanus dumerilii (Schlegel, 1839)

Varanus rudicollis Gray, 1845

Varanus salvator (Laurenti, 1768)



C.L. Chan

Aphaniotis fusca
(Peters, 1864)

SVL to 67 mm.

A slender lizard from lowland forests, with a reduced nuchal crest; long and slender limbs; dorsum dark brown; venter paler; two dark interorbital bars; and inner lining of mouth dark blue. Diet comprises caterpillars, beetles, millipedes, cockroaches and termites and 1–2 eggs are produced.

Distribution: Southern Thailand, the Malay Peninsula, Sumatra, Simalur, Nias (Mentawai Islands), Borneo, Singkep and the Natuna Islands.



Bronchocela cristatella
(Kuhl, 1820)

SVL to 130 mm.

A familiar tree lizard from parks and gardens, as well as lowland forests and the midhills; body compressed; nuchal crest with elongate scales; dorsal crest somewhat distinct, dorsum green, sometimes with white or light blue spots or bars, changeable to brown. Diet comprises beetles, flies and ants and 1–4 eggs are produced at a time, each spindle-shaped, with pointed ends.

Distribution: Southern Myanmar, Thailand, the Nicobar Archipelago, the Malay Peninsula, Sumatra, Borneo, Java, the Lesser Sundas, Makulu and the Philippines.



C.L. Chan

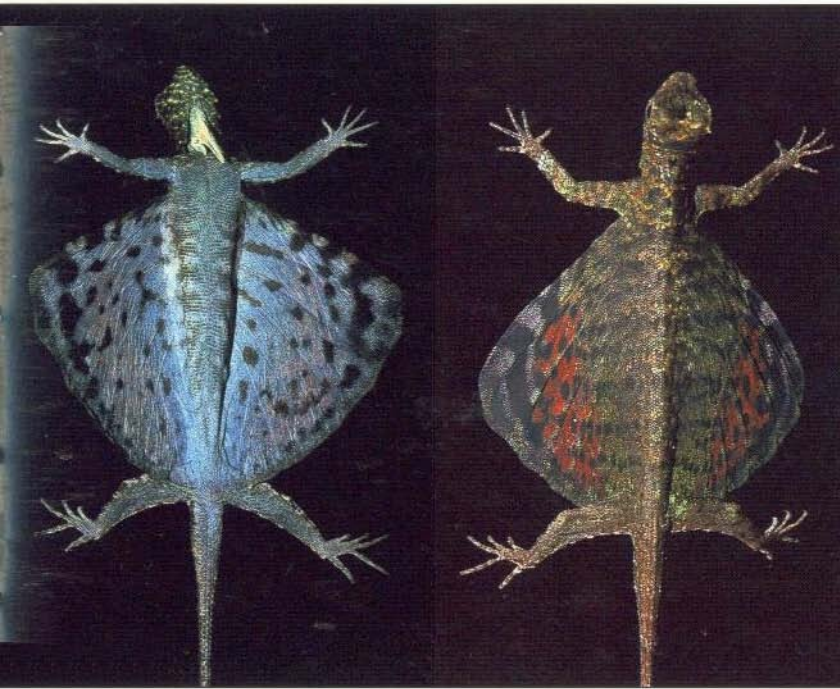


Bronchocela jubata
Duméril & Bibron, 1837

SVL to 150 mm.

A rather rare (in Borneo) tree lizard from Kalimantan; body relatively robust; nuchal and dorsal crest with elongated scales; dorsum green, changeable to brown or black, with yellow or red spots or vertical bars. Inhabits lowland forests as well as disturbed areas; diet comprises insects and two eggs are laid at a time, although more than a clutch may be produced in a year.

Distribution: Java, Borneo, Bali, Singkep, Sulawesi, Karakelang and Salibabu Archipelagos.

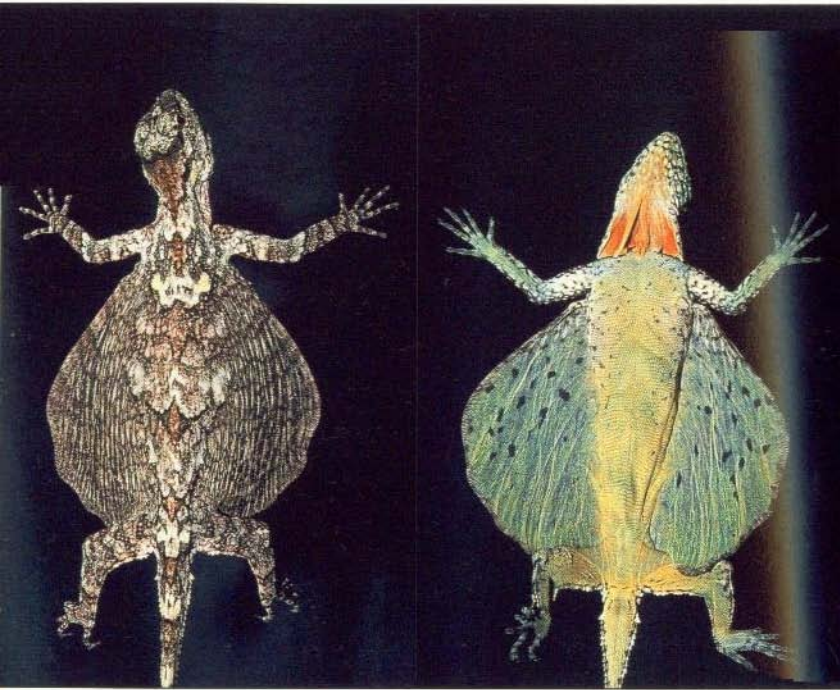


***Draco cornutus* Günther, 1864**

SVL to 85 mm.

A beautiful flying lizard; body slender, with a thorn-like scale over eye; tympanum scaleless; dewlap triangular, covered with small scales; nostril oriented laterally; dorsal crest absent; dorsum bright green to greenish-brown, in males; tan or light brown in females; patagium reddish-orange with dark spots or bands; a dark interorbital spot. Inhabits the plains and midhills, and feeds exclusively on small black ants. Clutches comprise 3–4 eggs.

Distribution: Sumatra, Borneo, Java, Bangunan Islands and the Sulu Archipelago.



***Draco fimbriatus* Kuhl, 1820**

SVL to 132 mm.

A large flying lizard; body relatively robust; spinous projection over eye; tympanum large, scaleless; males with a low nuchal sail; dorsum and patagium greyish-brown, with grey and pale green markings. Inhabits lowlands and mid-elevation forests. Diet unknown and presumably comprises arthropods and 2–4 eggs are laid at a time.

Distribution: Southern Thailand, the Malay Peninsula, including Singapore, Sumatra, the Mentawai Archipelago, Borneo, Java and Mindanao in the Philippines.

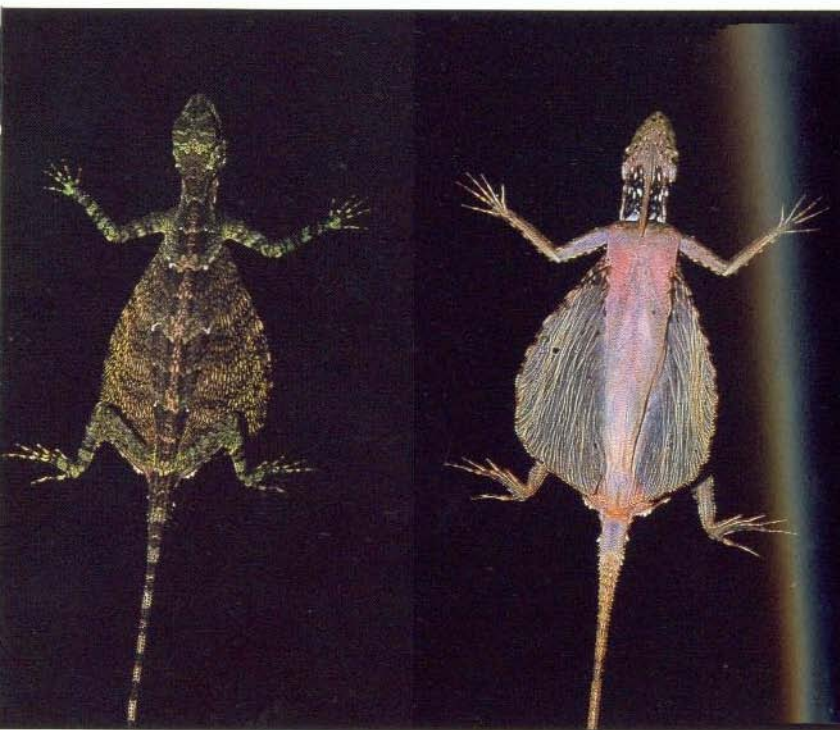


***Draco haematopogon* Boie in Gray, 1831**

SVL to 94 mm.

A slender flying lizard; tail crest absent; tympanum large, skin-covered; dewlap covered with small scales; no thorn-like scale above eyes; dorsum olive or brownish-grey, with indistinct lighter and darker spots; patagium black with yellow spots. Inhabits midhills and submontane forests, and diet probably comprises ants and other small insects. Between 2–3 eggs are produced at a time.

Distribution: The Malay Peninsula, Sumatra, Java and Borneo.



***Draco maximus* Boulenger, 1893**

SVL to 139 mm.

A large, robust flying lizard; no spinous projection above eye; males with nuchal sail; dewlap covered with small scales, dorsum green, with a brownish-olive pattern of bands; patagium black with discontinuous olive-brown lines. Inhabits river-edges from the lowlands to about 1000 m and diet presumably comprises ants and other insects. Between 1–5 eggs are produced at a time.

Distribution: The Malay Peninsula, Sumatra, Borneo and the Natuna Islands.

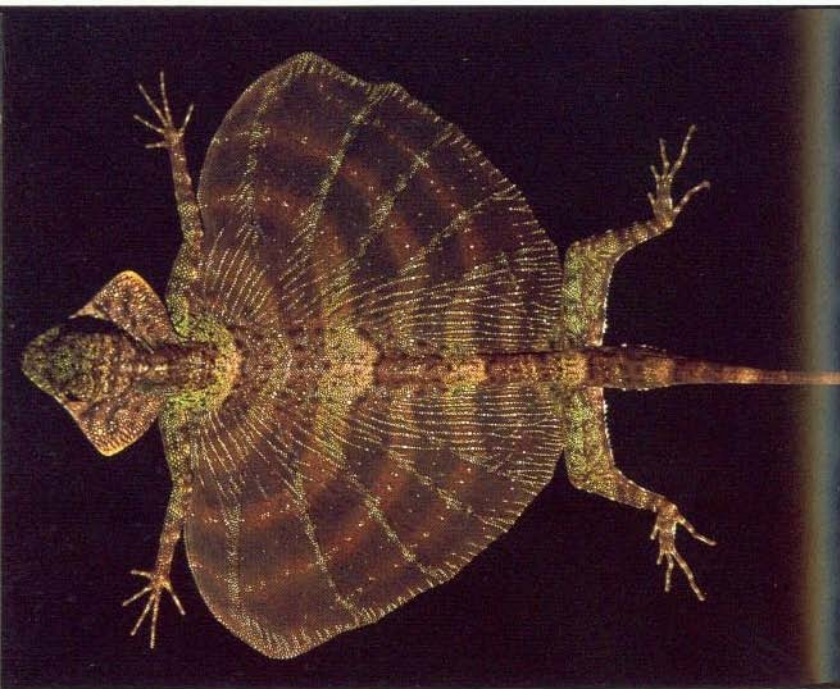


***Draco melanopogon* Boulenger, 1887**

SVL to 93 mm.

A slender flying lizard; spinous projects above eye absent; dewlap elongate, scales covering dewlap slightly enlarged; dorsum olive or green with brownish-grey bands or diamond-shaped spots; patagium black with scattered yellow-orange spots. Inhabits lowland forests. Diet comprises ants, beetles, millipedes, isopods and termites and two eggs are produced.

Distribution: Peninsular Thailand, the Malay Peninsula, including Singapore, Sumatra, Borneo and the Natuna Islands.



***Draco quinquefasciatus* Hardwicke & Gray, 1827**

SVL to 110 mm.

A slender flying lizard; no spinous projections above eye; dewlap tapering to a narrow tip; males with a low nuchal sail; dorsum bright green in males, brownish-olive in females, with dark specklings; patagium yellow or orangish-red above, with five dark brown or black cross-bars. Inhabits forests from the lowlands to the midhills. Feeds exclusively on ants and 1–4 eggs are produced.

Distribution: Southern Thailand, the Malay Peninsula, including Singapore, Sumatra, Pulau Sinkep, Pulau Belitung and Borneo.

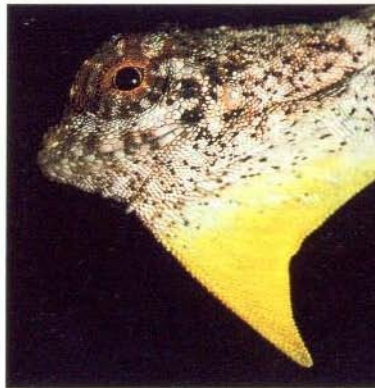


Draco sumatranus

Schlegel, 1844

SVL to 85 mm.

The commonest Bornean flying lizard, a slender species; tail crest absent; dewlap triangular, covered with small scales; nuchal crest present, males with blue forehead when displaying; dorsum light brown, with dark brown blotches; dewlap bright yellow, with black dots at base. Inhabits



open forests, plantations, parks and gardens. Diet includes ants and termites and 1–5 eggs are produced at a time.

Distribution: Thailand, the Malay Peninsula, including Singapore, Sumatra, the Mentawai and Riau Archipelagos, Borneo and Palawan.



***Gonocephalus bornensis* (Schlegel, 1848)**

SVL to 136 mm.

A robust arboreal lizard; nuchal and dorsal crests continuous, highly developed in males; dorsum bright green with five dark bands; sides of head and flanks green spotted; sides of body with light oval spots; nuchal and body crest brown and yellow; dewlap pale with dark, broken stripes. Inhabits primary rainforests in the midhills. Diet comprises ants and spiders and a clutch size of four eggs is known.

Distribution: Endemic to Borneo.